



OCEAN NETWORK EMERGENCY PHONE 1-800-OLIN-911

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD. (REFER TO THE OSHA CLASSIFICATION IN SEC. I.) THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE. THE EXPOSURE TO THE COMMUNITY, IF ANY, IS QUITE DIFFERENT.

I. PRODUCT IDENTIFICATION

REVISION NO : 1
REVISION DATE : 8/27/90
PRODUCT CODE : CPE133811
FILE NUMBER : CPE00009.0114
PRODUCT NAME: PACE(R) LARGE TABLETS
SYNONYMS: Trichloroisocyanuric Acid, TCCA, Trichlor
CHEMICAL FAMILY: Chloroisocyanurates
FORMULA: (ClNCO)₃
DESCRIPTION: Swimming pool sanitizer
OSHA HAZARD CLASSIFICATION: Oxidizer, skin corrosive, eye hazard, oral toxin, lung toxin

II. COMPONENT DATA

PRODUCT COMPOSITION

CAS or CHEMICAL NAME: Trichloro-s-triazinetriene
CAS NUMBER: 87-90-1
PERCENTAGE RANGE: 96-100
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

CAS or CHEMICAL NAME: Dichloroisocyanuric acid
CAS NUMBER: 2782-57-2
PERCENTAGE RANGE: 0-4
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

III. PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.
STORAGE CONDITIONS: Store in a clean dry well ventilated area. Keep away from incompatible chemicals (see below).
DO NOT STORE AT TEMPERATURES ABOVE: 60 Deg.C (140 Deg.F)

PRODUCT STABILITY AND COMPATIBILITY

SHELF LIFE LIMITATIONS: Indefinite. Available chlorine loss can be as little as 0.1% per year at ambient temperatures.

INCOMPATIBLE MATERIALS FOR PACKAGING: Paper, cardboard

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases

IV. PHYSICAL DATA

APPEARANCE: White granular solid or tablet-form product

FREEZING POINT: Not Applicable

BOILING POINT: Not Applicable

DECOMPOSITION TEMPERATURE: 225 Deg.C (437 Deg.F)

SPECIFIC GRAVITY: >1.0 @ 20 Deg.C

BULK DENSITY: Granular-0.89 to 1.1 g/cc

Tablets-1.16 to 1.90 g/cc

pH OF 1% SOLUTION: 2.7-2.9

VAPOR PRESSURE @ 25 DEG.C: Not Available

SOLUBILITY IN WATER: 1.2% @ 25 Deg.C

VOLATILES, PERCENT BY VOLUME: Not Applicable

EVAPORATION RATE: Not Applicable

VAPOR DENSITY: Not Applicable

MOLECULAR WEIGHT: 232.5

ODOR: Sharp, chlorine-like, bleach odor

COEFFICIENT OF OIL/WATER DISTRIBUTION: Not Available

V. PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA approved respirator equipped with chemical cartridge for protection against chlorine gas and a dust/mist type prefilter.

VENTILATION: Use local exhaust ventilation to minimize dust levels.

SKIN PROTECTIVE EQUIPMENT: Wear gloves, boots, chemical safety goggles, aprons or impermeable suit to avoid skin and eye contact.

EQUIPMENT SPECIFICATIONS:

RESPIRATOR TYPE: Half-face mask worn with chemical safety goggles or full face respirator worn without. Either respirator must be equipped with chemical cartridges for protection against chlorine gas and dust/mist pre-filters.

GLOVE TYPE: Neoprene

BOOT TYPE: Neoprene

APRON TYPE: Neoprene

FACE SHIELD: Not normally required

PROTECTIVE SUIT: Neoprene or other impermeable suit



MATERIAL SAFETY DATA

VI. FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:

FLAMMABLE: No
COMBUSTIBLE: No
PYROPHORIC: No
FLASH POINT: Not Applicable
AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): Not Applicable

NFPA RATINGS:

Health: 3
Flammability: 0
Reactivity: 2
Special Hazard Warning: OXIDIZER

HMIS RATINGS:

Health: 3
Flammability: 0
Reactivity: 2
Personal Protection: C

EXTINGUISHING MEDIA: Not Applicable

FIRE FIGHTING TECHNIQUES AND COMMENTS: Use water to cool containers exposed to fire. On small fires, use water spray or fog. On large fires, use heavy deluge or fog streams. Flooding amounts of water may be required before extinguishment can be accomplished. Do not use dry chemical extinguishers containing ammonia compounds.

VII. REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:

TEMPERATURES ABOVE: 225 Deg.C (437 Deg.F)
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: No
OTHER: Contact with small amounts of water may result in an exothermic reaction with the liberation of toxic fumes.
HAZARDOUS POLYMERIZATION: Will Not Occur
INCOMPATIBLE MATERIALS: Organic materials, oils, grease, sawdust, reducing agents, nitrogen containing compounds, other oxidizers, acids, bases, dry fire extinguishers containing ammonium compounds
HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, carbon dioxide
OTHER CONDITIONS TO AVOID: Damp or slightly wet product (will evolve nitrogen trichloride)

SUMMARY OF REACTIVITY:

OXIDIZER: Yes
PYROPHORIC: No
ORGANIC PEROXIDE: No
WATER REACTIVE: No

VIII. FIRST AID

EYES: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

SKIN: Immediately flush with water for at least 15 minutes. Call a physician. If clothing comes in contact with the product, the clothing should be removed immediately and should be laundered before re-use.

INGESTION: Immediately drink large quantities of water. DO NOT induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough vapor to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

IX. TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION

Inhalation, Skin, Eye, Ingestion

HARMFUL IF INHALED OR INGESTED.

HARMFUL IF EXPOSED TO SKIN OR EYES.

ODOR THRESHOLD

-No Available Data

-There is no data for irritation threshold.

TCCA has the potential to be immediately dangerous to life and health.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE :

INHALATION:

Inhalation of this material is irritating to the nose, mouth, throat, and lungs. It may also cause burns to the respiratory tract with the production of lung edema which can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage.



MATERIAL SAFETY DATA

Chronic (repeated) inhalation exposure may cause impairment of lung function and permanent lung damage.

EYE:

Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.

SKIN:

Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling, and scab formation. Prolonged skin exposure may cause destruction of the dermis with impairment of the skin at site of contact to regenerate. Effects from chronic skin exposure would be similar to those from single exposure except for effects secondary to tissue destruction.

INGESTION:

Irritation and/or burns can occur to the gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration.

There are no known or reported effects from chronic exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Asthma and respiratory and cardiovascular disease.

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY

None known or reported.

ANIMAL TOXICOLOGY

Acute Toxicity:

Inhalation LC 50 - > 50 mg/l (rats, one hour exposure)
Oral LD 50 - 490 mg/kg (rat)
Dermal LD 50 - greater than 2 g/kg (rabbit)
Causes burns to eyes and skin.

Toxicity to Wildlife:

LC 50

Rainbow trout (96 hrs. exposure) - 0.32 ppm
Bluegill sunfish (96 hrs. exposure) - 0.30 ppm
Daphnia magna (48 hrs. exposure) - 0.21 mg/l
Mallard duck (8-day dietary exposure) - > 10,000 ppm
Mallard duck (LD 50) - 1.6 g/kg
Bobwhite quail (8-day dietary exposure) - 7422 ppm

Chronic Toxicity:

There are no known or reported effects from repeated exposure.
Toxicological investigation indicates it does not produce significant effects from chronic exposure.

Reproductive Toxicity:

There are no known or reported effects on reproductive function or fetal development. Toxicological investigation indicates it does not effect reproductive function of fetal development.

Carcinogenicity:

This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

Mutagenicity:

This product is not known or reported to be mutagenic.

X. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172:
Trichloroisocyanuric Acid, Dry Oxidizer UN2468

REPORTABLE QUANTITY: Not applicable (Per 49 CFR 172.101, Appendix)

The material described above is subject to the U.S. DOT HAZARDOUS MATERIALS REGULATIONS via the modes and packaging quantities indicated below with the letter "x":

MODE	PACKAGING QUANTITIES	
<input checked="" type="checkbox"/> Rail	<input checked="" type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Non-Bulk
<input checked="" type="checkbox"/> Motor	<input checked="" type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Non-Bulk
<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Non-Bulk
<input checked="" type="checkbox"/> Air	<input checked="" type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Non-Bulk

The applicable packaging sections in 49 CFR are 173.153 and 173.217.

DOT EMERGENCY GUIDE NUMBER: 42

SPECIAL COMMENTS: Alternative DOT Hazardous Material Description:
Trichloro-s-triazinetriene Oxidizer NA2468

XI. SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: Not Applicable (Per 40 CFR 302.4)

SPILL MITIGATION PROCEDURES: Hazardous concentrations in air may be found in local spill area and immediately downwind.



MATERIAL SAFETY DATA

If spill material is still dry, do not put water directly on this product as a gas evolution may occur. If material is wet, contact the OCEAN network for proper stabilization procedures.

Air Release - vapors may be suppressed by the use of a water fog.

Water Release - this material is heavier than water. This material is soluble in water. Stop flow of material into water source as soon as possible. Begin monitoring for available chlorine and pH immediately.

Land Spill - Do not contaminate spill material with any organic materials, ammonia, ammonium salts or urea. Clean up all spill material with clean, dry dedicated equipment and place in a clean dry container.

SPILL RESIDUES: Dispose of per guidelines under Section XII, WASTE DISPOSAL. This material may be neutralized for disposal; you are requested to contact OCEAN at 800-Olin-911 before beginning any such operation.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS: Additional respiratory protection is necessary when a small spill involving this product occurs. You are recommended to use a half mask cartridge type NIOSH approved respirator, with chlorine cartridges.

All other responses to this material require the use of a self-contained breathing apparatus (SCBA).

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, gloves (see below for compatible materials), hard hat, splash-proof goggles, and impervious clothing, i.e., chemically impermeable suit.

Compatible materials for response to this material are Neoprene, Chlorinated Polyethylene, Butyl Rubber, and Saranex

Protection concerns must also address the following:

If this material becomes damp/wet or contaminated in a container the formation of nitrogen trichloride gas may occur and an explosive condition may exist.

XII. WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.

As a hazardous solid waste, it must be disposed of in accordance with local, state, and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by treatment.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII. ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT: This substance is listed on the Toxic Substances Control Act Inventory

SUPERFUND AMENDMENT AND REAUTHORIZATION ACT TITLE III:

HAZARD CATEGORIES, PER 40 CFR 370.2:

HEALTH: Immediate (Acute)

PHYSICAL: Fire and Reactivity

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:

EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:

None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:

None Established

XIV. ADDITIONAL INFORMATION

No Additional Information

XV. MAJOR REFERENCES

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2. ANSI Z88.2. Recommended Practice for Respiratory Protection. American National Standards Institute, New York, NY.
3. Baker, C. J., The Fire Fighter's Handbook of Hazardous Materials, 4th Ed., Indiana: Maltese Enterprises, Inc., 1984.
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6. CERIS (Chemical Emergency Response Information System) On Line Database. Association of American Railroads.
7. Chemical Degradation and Permeation Database and Selection Guide for Resistant Protective Materials. Austin, TX.
8. Clayton, G. and F. Clayton, Eds., Patty's Industrial Hygiene and Toxicology, Vol. 2A-C 3rd Ed., New York: John Wiley & Sons, 1981-1982.
9. Code of Federal Regulations, Titles 21, 29, 40 and 49. Washington, DC: U.S. Government Printing Office.

10. Emergency Response Guide (D.O.T.). Washington, DC: U.S. Government Printing Office, 1988.
11. Fire Protection Guide on Hazardous Materials, 9th Ed., National Fire Protection Association, Batterymarch Park, Quincy, MA, 1986.
12. Gosselin, R., et al., Gosselin-Clinical Toxicology of Commercial Products, 5th Ed., Baltimore: Williams and Wilkins, 1984.
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14. IARC Monogram on the Evaluation of Carcinogenic Risk of Chemicals to Man., Geneva: World Health Organization, International Agency for Research on Cancer.
15. Lenga, R., The Sigma-Aldrich Library of Chemical Safety Data, 1st Ed., Milwaukee, WI: Sigma-Aldrich Corporation, 1985.
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19. Olin Respiratory Protection Manual.
20. Sax, N. Irving, Dangerous Properties of Hazardous Materials 6th Ed., New York: Van Nostrand Reinhold Company, 1984.
21. Threshold Limit Values and Biological Exposure Indices for 1988-89. Cincinnati, OH: American Conference of Government Industrial Hygienists, 1987.
22. Toxic Substances Control Act Inventory, Washington, DC: U.S. Government Printing Office, 1986.
23. Hammond, B., et al., A Review of Toxicology Studies on Cyanurate and its Chlorinated Derivatives, Environmental Health Perspectives, Vol. 69, pp. 287-292, 1986.
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25. Eight-Day Dietary LC 50 - Bobwhite Quail, ACL 85, Final Report, Truslow Farms Inc., Wildlife Research Division, Sterling, VA, Project No. 139-112, July 15, 1975.
26. Eight-Day Dietary LC 50 - Mallard Duck, ACL 85, Final Report, Truslow Farms Inc., Wildlife Research Division, Sterling, VA, Project No. 139-113, July 15, 1975.
27. Acute Oral LD 50 - Mallard Duck, ACL-85, Final Report, Truslow Farms Inc., Wildlife International Ltd., Chestertown, MD, Project No. 139-120, October 18, 1976.
28. Acute Toxicity of ACL-85 to Daphnia magna, Bioassay Report, E G & G, Bionomics, Aquatic Toxicology Laboratory, Wareham, MA, November, 1976.

29. Four-Day Static Aquatic Toxicity Studies with ACL-85, LOT No. 5/8/75 GDN in Rainbow Trout and Bluegills, Industrial BIO-TEST Laboratories, Inc., Northbrook, IL, BTL No. 75-39, IBT No. 621-07227, September 5, 1975.
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31. Inhalation LC 50 (Rat), Trichloroisocyanuric Acid (Trichloro-S-Triazinetrione), Final Report, Consumer Product Testing, Fairfield, NJ, Study No. 78272-1, Reference No. P.O. RC-42380, April 9, 1979.

THE INFORMATION IN THIS MATERIAL SAFETY SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

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